

### **Remarks**

Claims 1, 23, and 42-45 are pending in the application. Claims 1, 23, and 45 stand rejected. Claims 42-44 are allowed. Claim 23 is amended. The Applicants expressly reserve the right to further prosecute the same or similar claims in subsequent patent applications claiming the benefit of priority to the instant application. 35 USC § 120.

The Applicants appreciate the Examiner's acknowledgement on the record that the Buchwald *et al.* (US Patent 6,693,178) is not available as prior art under § 103(a) because the patent does not qualify as prior art under § 102(e), and her subsequent withdrawal of the Buchwald *et al.* (US Patent 6,693,178) reference in the 35 USC § 103(a) rejection. In addition, it is noted with appreciation that the terminal disclaimer filed over US Patent 6,323,339 has overcome the Examiner's rejection based on the judicially-created doctrine of obviousness-type double patenting.

### **Minor Objections**

The Examiner objects to claim 23 for using abbreviations (*e.g.*, TIPS and PMB) and for lacking a period. Claim 23 has been amended to address the Examiner's objections: the chemical abbreviations used have been defined in the claim; and a period has been added. Support for the definitions added for the abbreviations can be found on page 38, lines 9-10 ("The abbreviations contained in said list, and all abbreviations utilized by organic chemists of ordinary skill in the art, are hereby incorporated by reference."). Importantly, in the process of amendment, therefore, no new matter has been added to the claims.

#### ***Typographical Errors in Claim 23***

The Applicants have corrected various typographical errors in claim 23. First, in all of the structures depicted in claim 23 the identity of the substituents on the phosphate oxygens has been amended to conform with the corresponding structural limitation in claim 1, upon which claim 23 depends. Specifically, in claim 1 the groups on each Z are R; therefore, the structures in claim 23 have been amended so that the groups on the phosphates are R (as opposed to R', which

was the typographical error). The amendment is required to maintain proper antecedent basis for the structures depicted in claim 23.

Second, also in all of the structures depicted in claim 23 the identity of the substituent at the 2-position of the glycosyl phosphate moiety has been amended to conform with the corresponding structural limitation in claim 1, upon which claim 23 depends. Specifically, in claim 1 the group at the 2-position of each glycosyl moiety is R<sub>2</sub>, which includes -OR', but does not include -OR. Therefore, the structures in claim 23 have been amended so that the group at the 2-position of each glycosyl phosphate moiety is -OR'. The amendment is required to maintain proper antecedent basis for the structures depicted in claim 23.

Finally, in two instances PMB (para-methoxybenzyl) was used when PMP (para-methoxyphenyl) was intended. This typographical error is common, stemming from the ubiquity of the PMB protecting group and the typical synthetic steps used to make such an acetal: acid-catalyzed reaction of *para*-methoxyphenyl carboxaldehyde to form a PMP acetal, not a PMB acetal. In sum, the Applicants have changed PMB to PMP in the first glucose and first galactose sugar.

The Applicants believe the above amendments place claim 23 in condition for allowance and request the withdrawal of the minor objections to said claim.

#### **Claim Rejections Based on 35 USC § 103(a)**

Claims 1, 23 and 45 stand rejected under 35 USC § 103(a), based on the Examiner's contention that they are unpatentable over U.S. Patent 5,095,123 ("the Sabesan patent"). The Examiner has maintained this rejection for the reasons of record: the Examiner comments that the compounds disclosed in reaction scheme 1 and examples 2, 3, and 5 of the Sabesan patent fall within the scope of rejected claims 1 and 23. The Applicants respectfully disagree.

The Applicants respectfully remind the Examiner that the compounds described in reaction scheme 1 and examples 2, 3, and 5 of U.S. Patent 5,095,123 are diphenyl phosphates, and as such do not fall within the scope of claims 1 and 23. The Examiner's contention in the instant Office Action (page 4, lines 11-12) that "in claims 1 and 23 the substituents R and R' can

be aryl” is incorrect. The Examiner correctly states the facts (page 3, lines 2-3), wherein it is stated that “[c]laims 1 and 45 differ in selecting R = aryl.” Since claim 1 (and therefore dependent claim 23) does not allow for R to be phenyl, the compounds cited by the Examiner do not fall within the scope of the claims as currently presented.

The Examiner also argues that: “it would have been obvious to a person having ordinary skill in the art at the time the invention was made, [to] produce glycosyl compounds phosphorylated at C-1 having selected values for variables in the carbohydrate moiety and in the phosphate ester moiety from among those taught by Sabesan.” The Applicants respectfully traverse this rejection.

The Applicants respectfully disagree with the Examiner’s assertion that the variables related to the carbohydrate moiety of the Sabesan patent are interchangeable with those taught for the phosphate ester moieties. The Applicants argue that these two sets of variables are not interchangeable because they represent two distinct functional groups. The carbohydrate variables form ether linkages, and thereby define a relationship between two carbon atoms and one oxygen atom. The phosphate ester variables form phosphate ester linkages, and as such define a relationship between one carbon atom, one oxygen atom and one oxidized phosphorus atom. There is a distinct change in chemical properties when one substitutes a carbon atom for a phosphorus atom, much less an oxidized phosphorus atom. Since carbon and phosphorus differ in their electronegativities and electronic configurations, they have different bonding characteristics. In sum, an oxygen-containing substitution on carbon is not the same as the counterpart substitution on phosphorus; to claim as much is contrary to chemical knowledge.

Given the argument above, the Applicants respectfully assert that a *prima facie* showing of obviousness has not been made (see *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438; Fed. Cir. 1991) and therefore request the withdrawal of the rejections of claims 1, 23 and 45 under 35 U.S.C. § 103(a).

**Fees**

The Applicants believe they have provided for the required fees in connection with the filing of this paper. Nevertheless, the Director is hereby authorized to charge any additional required fee to our Deposit Account, 06-1448.

**Conclusion**

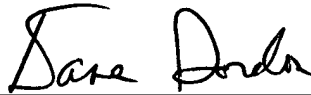
In view of the above amendments and remarks, it is believed that the pending claims are in condition for allowance. The Applicants respectfully request reconsideration and withdrawal of the pending rejections. The Applicants thank the Examiner for careful consideration of the present case. If a telephone conversation with Applicants' Attorney would expedite prosecution of the above-identified application, the Examiner is urged to contact the undersigned.

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Respectfully submitted,  
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